DOCKET NO. 4004-015-30

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Dominique COSTER et al. ART UNIT: 1755
SERIAL NO.: 09/744,932 EXAMINER: Elizabeth A. Bolden
FILING DATE: March 26, 2001
FOR: DEEP COLOURED GREEN-TO-BLUE SHADE SODA-LIME GLASS

APPELLANTS' BRIEF ON APPEAL UNDER 37 CFR 1.192

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SIR:

This is an Appeal from the decision of the Primary Examiner mailed February 28, 2003. In accordance with 37 CFR 1.192, this Brief, along with the Appendix, is filed in triplicate and is accompanied by the required fee.

I. REAL PARTY IN INTEREST

The real party in interest is the Assignee of the above-captioned application, Glaverbel.

II. RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences which will be directly affected by, will directly affect, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 20-22, 28, 29, 32-36 and 38-42 are currently pending with Claim 20 being the only independent claim.

The Final Rejection of Claims 20-22, 28, 29, 32-36 and 38-42 is appealed and those claims are set forth in the attached Appendix.

IV. STATUS OF AMENDMENTS

No amendments have been proposed subsequent to August 27, 2003, Final Office Action currently being appealed.

V. SUMMARY OF THE INVENTION

Appellants' claims relate in particular to deep-colored glasses of green-to-blue shade. These glasses are generally chosen for their protective properties with respect to solar radiation.

The glasses may contain 0.40 to 0.52 wt. % of FeO, present under Illuminant A and for a glass thickness of 4mm, a total light transmission (TLA4) less than 70%, a selectivity (SE4) higher than 1.65 and an ultraviolet radiation transmission (TUV4) less than 8%. (Illuminant A is one way of measuring optical properties.) The colored glass is particularly suited for glazings for use in motor vehicles and for use in buildings.

VI. ISSUE

The issue in this Appeal is:

Are the claims patentable under 35 U.S.C. § 103 for lack of obviousness? Appellants contend the answer to be yes.

VII. GROUPING OF CLAIMS

For the sole purpose of the present appeal, all claims stand or fall with Claim 20.

VIII. STATEMENT OF THE ARGUMENT

A. Confirmation of Interview

Appellants' attorney wishes to thank Examiner Bolden for granting an interview on 11th December 2003. The present claims and prior art were discussed as described in the Interview Summary prepared by the Examiner.

B. Identification of Related Cases

The present application is one of a series of related applications, most of which are pending with Examiner Bolden. All of the related applications are identified as follows for the purpose of completeness.

Application Number	Filing Date
09/868,848	21 June 2001
10/759,434	27 January 2004 (continuation)
09/744,932	26 March 2001
10/110,078	24 May 2002
10/240,854	4 October 2002
10/311,682	19 December 2002
10/771,524	5 February 2004 (continuation)

C. The Single Independent Claim

Claim 20, the sole independent claim, is repeated here for convenience with emphases added:

"20. A colored soda-lime glass composed of glass-forming principal constituents and of coloring agents characterized in that it **comprises coloring agents** in the following percentages by weight,

the total amount of iron expressed in the form Fe_2O_3:

Fe_2O_3	1.2 to 1.85%
FeO	0.4 to 0.50%
Co	0.0020 to 0.0130%
Cr_2O_3	0 to 0.0240%
V_2O_5	0 to 0.1%
Se	0 to 0.0015%

and has the following optical properties:

$$20\% < TLA4 < 40\%$$

$$15\% < TE < 25\%$$

$$0\% < TUV4 < 5\%$$

$$480nm < \lambda_D < 520nm$$

$$10\% < P < 20\%$$

$$SE4 > 1.65."$$

Thus, for ease of discussion, and not for the purpose of claim construction or claim limitation, Claim 20 may be considered as being directed to a glass having certain components or constituents (e.g., coloring agents) and having certain optical properties.

D. <u>The Rejection Based Upon Seto et al, EP 0 825 156 A1 is Incorrect</u>

Claims 20-22, 28, 29, 32-36, 38, 40 and 41 were rejected under 35 U.S.C. §103 based upon Seto et al, EP 0 825 156 A1. The basis of the "prima facie obviousness" rejection is the fact that Seto et al is said to have overlapping composition ranges and some overlapping optical properties (Final Rejection, Paper No. 10, page 2). Although Seto et al examples 3, 7, 12, 14,

and 18-20 were relied upon by the Examiner in an earlier rejection predicated on 35 U.S.C. § 102, there is no such rejection applicable to the present claims.

The following three statements from the Final Rejection, page 3 explain the Examiner's conclusions:

> (1) Seto et al does not teach the selectivity, TLC5 and TUV4 of the glass as recited in claims 20-22, 32 and 38.
>
> (2) However it would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected from the overlapping portion of the ranges disclosed by the reference because overlapping ranges have been held to establish *prima facie* obviousness. See MPEP 2144.05.
>
> (3) One of ordinary skill in the art would expect that a glass with overlapping compositional ranges would have the properties recited in claims 20-22, 32 and 38.

(Paragraph numbering 1, 2 and 3 added by Appellants.)

These conclusions, however, are not supported by the Seto et al reference itself. First, Appellants provided in their response to the non-final action a chart indicating composition and optical property data for the seven examples (examples 3, 7, 12, 14, 18-20) previously relied upon by the Examiner. Since the Final Rejection did not rely on any one specific example in Seto et al, but commented only on the compositions collectively, Appellants provide data below in Appellants' Table I based on the total amount of coloring agents. (If requested, Appellants will provide data as to each coloring agent individually.) Sorting or ordering the data of those seven examples below in Appellants' Table I shows no correlation between the total amount of coloring agents on the one hand, and the four listed optical properties on the other hand. (Those

four optical properties (TLA 4, TE4, TUV4 and purity (P)) are listed because they are among the optical properties in Claim 20.) Appellants' Table I is based on those seven examples (3, 7, 12, 14, 18-20) previously relied upon by the Examiner.

Appellants' Table I
Lack of Correlation Between Total Amount of Coloring Agent and Selected Optical Properties from the Seven Examples in the Seto et al Reference Previously Relied on by the Examiner.

Sequence or order of increasing Total Amount of Coloring Agent	Sequence or order of increasing TLA4	Sequence or order of increasing TE4	Sequence or order of increasing TUV4	Sequence or order of increasing purity
7	19	20	19	7
3	20	18	14	14
12	18	19	12	3
14	12	14	3	12
18	3	12	7	20
20	7	7	20	18
19	14	3	18	19

By comparing the sequence or order of the seven examples in the first column (increasing total amount of coloring agent) with the sequence or order of any listed optical property in any of the remaining columns, there is no evidence of correlation between total amount of coloring agent on the one hand and any of those optical properties on the other hand. The absence of any such correlation rebuts the conclusions in the Final Rejection that "One of ordinary skill in the

art would expect that a glass with overlapping compositional ranges would have the properties recited in claims 20-22, 32 and 38". (This is paragraph numbered 3 by Appellants.) In fact, there is no evidence that one of ordinary skill would expect that within the ranges of independent Claim 20 for the "coloring agents", the glass would have the claimed "optical properties". The absence of correlation indicates, for example, that for the total amount of coloring agent, there is no teaching that the claimed optical properties would, in fact, fall within the respective ranges of independent Claim 20.

Indeed, the absence of correlation between the total amount of coloring agent and any of the listed optical properties not only rebuts the rejection, but suggests that MPEP 2144.05 may not have been applicable to the present facts.

Since independent Claim 20 is not obvious based upon Seto et al, Claim 20 and all claims depending therefrom are submitted to be allowable.

E. <u>The Rejection based upon Seto et al and Goodman et al is Moot</u>

Claims 39 and 42 were rejected under 35 U.S.C. §103 based on the combination of Seto et al and Goodman et al. Appellants have indicated that all claims stand or fall together. Since Claims 39 and 42 depend, either directly or indirectly from independent Claim 20, and since independent Claim 20 was not rejected based on this combination of references, the rejection is moot vis-a-vis the present appeal.

F. <u>The Rejection based upon Shelestak et al is Improper</u>

Claims 20-22, 28, 29, 32-36, 38 and 40-42 were rejected under 35 U.S.C. §103 as unpatentable over (i.e., obvious based upon) Shelestak et al, U.S. 6,413,893. This is respectfully traversed.

The following five statements from the Final Rejection, pages 4 and 5 explain the Examiner's conclusions:

> (1) Shelestak et al disclose a composition whose ranges overlap the compositional limitations of claims 20-36, 38 and 40-42. See abstract, column 18 lines 36-49, and column 18, lines 59-67. Overlapping ranges have been held to establish *prima facie* obviousness, MPEP 2144.05.
>
> (2) Shelestak et al fail to disclose the property of instant claim 38. The composition of Shelestak et al has overlapping ranges of components with the claimed glass; therefore one of ordinary skill in the art would expect that the glass of Shelestak et al would have the claimed properties.
>
> (3) Shelestak et al differs from the present claims by failing to disclose specific examples having a TUV transmission of less than 8% as recited in claim 20.
>
> (4) However, the reference teaches that titanium oxide, vanadium oxide or other materials listed can be added to reduce the ultra violet transmission of the glass. See, column 3, lines 36-39 and column 18, lines 41-49 and 59-67.
>
> (5) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have increased the vanadium oxide content of the examples of Shelestak et al as suggested by Shelestak et al because the resultant glass would have a decreased TUV.

(Paragraph numbering 1-5 added by Appellants.)

The above rejection has two parts. The first part (paragraphs 1-2) is similar to the rejection based on Seto et al., and, as will be demonstrated, the conclusions are not supported by the Shelestak et al reference itself. The second part proposes a "modification" of the reference contrary to the reference itself.

Appellants provide data below in Appellants' Table II based on the total amount of coloring agents for the first ten Examples in the Shelestak document. (If requested, Appellants will provide data as to each coloring agent individually and/or as to a greater number of examples.) The 6 columns in Appellants' Table II include total amount of coloring agent and the claimed optical properties from independent Claim 20, namely, TLA4 (LTA4 in the reference), TE (TSET in the reference), TUV4 (TSUV in the reference), SE4 (SE in the reference) which is calculated as TLA4/TE (or LTA4/TSET) and Purity.

Sorting or ordering the data of the first ten examples in Shelestak et al shows no correlation between the total amount of the coloring agents on the one hand, and the listed optical properties on the other hand.

Appellants' Table II
Lack of Correlation Between Total Amount of Coloring Agent and Listed Optical Properties from the First Ten Examples in the Shelestak et al reference

Sequence or order of increasing Total Amount of Coloring Agent	Sequence or order of increasing LTA4	Sequence or order of increasing TSUV	Sequence or order of increasing TSET	Sequence or order of increasing SE	Sequence or order of increasing Purity
8	1	1	3	1	2
9	2	10	8	10	1
3	3	6	9	4	3
7	4	4	7	6	4
5	5	5	2	5	5
4	6	2	5	2	7
2	7	7	6	7	9
1	8	9	4	9	6
10	9	8	10	8	8
6	10	3	1	3	10

By comparing the sequence or order of the ten examples in the first column (increasing amount of total coloring agent) with the sequence or order of listed optical properties in any of

the remaining columns, there is no evidence of correlation between total amount of coloring agent on the one hand and any of those optical properties on the other hand. The absence of any such correlation rebuts the conclusions in the Final Rejection that because "The composition of Shelestak et al has overlapping ranges with the claimed glass; therefore one of ordinary skill in the art would expect that the glass of Shelestak et al would have the claimed properties". (This is paragraph numbered 2 by Appellants.) In fact, there is no evidence that one of ordinary skill would expect that within the ranges of independent Claim 20 for the "coloring agents", the glass would have the claimed "optical properties". The absence of correlation indicates, for example, that for the total amount of coloring agent, there is no teaching that the claimed optical properties would, in fact, fall within the respective ranges of independent Claim 20.

Indeed, the absence of correlation between the total amount of coloring agent and any of the listed optical properties not only rebuts the rejection but suggests that MPEP 2144.05 may not have been applicable to the present facts.

The foregoing should resolve the issue of the rejection based on Shelestak et al. For completeness, Appellants will address the second part of the rejection.

In the second part of the rejection there is a difference between what is taught by the reference and how it is interpreted in the Final Rejection. Even if this difference is minimized, however, there is an insufficient disclosure and lack of enablement in the Shelestak et al reference for the purpose for which it is relied upon in the Final Rejection.

The second part of the rejection based on Shelstak et al relates to the inclusion in Claim 20 of vanadium oxide. According to the Final Rejection, as noted above, "the reference teaches that titanium oxide, vanadium oxide or other materials listed can be added to reduce the ultra violet transmission of the glass. See, column 3, lines 36-39 and column 18, lines 41-49 and 59-67." (emphasis added)(Appellants' paragraph numbered 4.) The Final Rejection continues

"Therefore, it would have been obvious ... to have increased the vanadium oxide content of the examples of Shelestak et al ....". (emphasis added)(Appellants' paragraph numbered 5.)

The "difference" is that Shelestak does not disclose vanadium oxide in any example. Therefore, contrary to the Final Rejection, there is no vanadium oxide present so that the amount of vanadium oxide can be "increased". In other words, Appellants submit that Shelestak can not be properly relied upon for the proposition that it was obvious to "increase" the amount of vanadium oxide. This should be sufficient to rebut the second portion of the rejection.

But even if that alone is not sufficient, the first cited portion of the Shelestak et al specification (Appellants' paragraph numbered 4) refers to the facts that chromium may provide some ultraviolet radiation absorption and that titanium oxide is an ultraviolet radiation absorber. (Emphases added) The second of the two cited portions of the Shelestak et al specification refers to vanadium as a partial or complete replacement for the chromium and suggests that Cr_2O_3 in the range of about 25 to about 800 ppm may be replaced by about 0.01 to 0.32 wt % V_2O_5.

Appellants submit that this is not a sufficient teaching nor sufficiently enabling. There is no Shelestak et al example using vanadium oxide. There is no teaching as to the methodology for "replacement" of chromium oxide. This leaves the person of ordinary skill with a two-fold problem. First substantial experimentation as to how much vanadium oxide to add (or substitute) and second, the effect of such addition/substitution on all the optical properties, not just TUV4. For example, does Shelestak et al teach a linear replacement, i.e., 25 ppm chromium oxide replaced by about 0.01 wt % vanadium oxide at one extreme and 800 ppm chromium oxide replaced by about 0.32 wt % vanadium oxide at the other extreme? Shelestak et al provides no guidance beyond the invitation to experiment and certainly no guidance on the relative effect of the partial or complete proposed vanadium oxide replacement for chromium oxide on any other optical property.

Even if a partial or complete replacement of vanadium oxide for chromium oxide were made, and/or if vanadium oxide were "added", and assuming (i) that it was obvious to determine how much to "replace" or "add" and (ii) whether the partial or complete replacement was on a linear or non-linear basis (relative to the chromium oxide), there is the absence of any teaching on how such replacement would change the (ultraviolet transmission) optical property if at all. Appellants use the term "if at all" because the cited portions of Shelestak et al do not indicate if the partial or complete replacement of vanadium oxide for the chromium oxide would even change the ultraviolet transmission. In other words, to the extent that Shelestak et al suggests an alternative (vanadium oxide) there is no qualitative or quantitative data as to the result of using such an alternative.

Next, even if the substitution/addition/partial replacement/complete replacement were somehow determined to be obvious, either there would be or would not be a change in TUV4. If there was no change in TUV4, then the sequence or ordering of the data in Appellants' Table II, column 3, would be unchanged and there would be no correlation between the total amount of coloring agent on the one hand and the TUV4 in the Shelestak et al reference as modified with the hypothetical use of vanadium oxide. With no correlation, there is no support for the conclusion that one would expect the "modified" glass composition to have the claimed properties.

If, on the other hand, the proposed substitution/addition/partial replacement/complete replacement of vanadium oxide for chromium oxide were to provide perfect correlation between columns 1 and 3 in Appellants' Table II, there still is no teaching as to the impact of the vanadium oxide on the optical properties in each of columns 2, 4, 5 or 6. If there is no impact, then the data in those columns are still not correlated to column 1 in Appellants' Table II, and

there is no support for the conclusion that one would expect the "modified" glass composition to have the claimed properties.

The Final Rejection does not suggest that addition or substitution or replacement of an unspecified amount of vanadium oxide would provide correlation between total amount of coloring agent (Appellants' Table II, column 1) and each of the optical properties (Appellants' Table II, columns 2-6). The Shelestak et al reference does not disclose the impact of vanadium oxide on any of the optical properties (other than TUV4) and therefore can not be said to teach that there would be correlation between the addition/partial replacement/complete replacement of vanadium oxide on LTA4, TSET, SE or Purity.

Absent any correlation, there is no basis to suggest that upon making the proposed modification, that one of ordinary skill would have expected the "modified" glass composition to have the claimed properties. In this regard, the Shelestak et al reference is nothing more than an invitation to experiment unduly, i.e., without any guidance as to expected results.

The absence of any correlation of the data in Appellants' Table II, before or after the proposed "modification" and the absence of a proper enabling teaching relative to vanadium oxide rebut any conclusions in the Final Rejection and indeed eliminates any *prima facie* obviousness rejection based upon Shelestak et al.

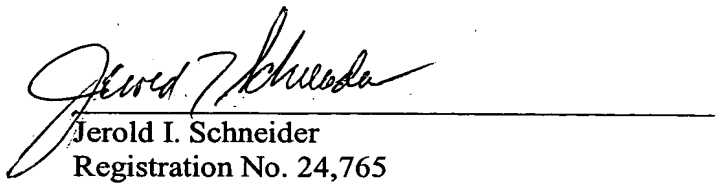
Since independent Claim 20 is not obvious based upon Shelestak et al, Claim 20 and all claims depending therefrom are submitted to be allowable.

IX. CONCLUSION

For each of the foregoing reasons it is submitted that there is no *prima facie* case of obviousness or, if there is such a *prima facie* case of obviousness it has been amply rebutted by Appellants. Accordingly the Final Rejection should be reversed in all respects.

Respectfully submitted,

PIPER RUDNICK LLP



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CLAIM APPENDIX

1-19 (Canceled)

20. (Previously Presented) A colored soda-lime glass composed of glass-forming principal constituents and of coloring agents characterized in that it comprises coloring agents in the following percentages by weight, the total amount of iron expressed in the form Fe_2O_3:

Fe_2O_3	1.2 to 1.85%
FeO	0.4 to 0.50%
Co	0.0020 to 0.0130%
Cr_2O_3	0 to 0.0240%
V_2O_5	0 to 0.1%
Se	0 to 0.0015%

and has the following optical properties:

$$20\% < TLA4 < 40\%$$

$$15\% < TE < 25\%$$

$$0\% < TUV4 < 5\%$$

$$480nm < \lambda_D < 520nm$$

$$10\% < P < 20\%$$

$$SE4 > 1.65.$$

21. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it has a selectivity (SE4) of at least 1.70.

22. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it has a selectivity (SE4) of at least 1.75.

23-27 (Canceled)

28. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it has a purity (P) of greater than 10%.

29. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it contains, in addition to Fe, at least one coloring agent selected from the group consisting of Cr, Co, V, Se, Ti, Ce, Mn.

30-31 (Canceled)

32. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it has the following optical properties:

$$25\% < TLA4 < 35\%$$

$$15\% < TE4 < 20\%$$

$$0\% < TUV4 < 3.5\%$$

$$495nm < \lambda_D < 500nm$$

$$10\% < P < 15\%.$$

33. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it has a TLA4 of less than 30%.

34. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it has a TLA4 of less than 28%.

35. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it comprises coloring agents in the following percentages by weight, the total amount of iron being expressed in the form of Fe_2O_3:

Fe_2O_3	1.45 to 1.85%
FeO	0.40 to 0.45%
Co	0.0030 to 0.0120%
Cr_2O_3	0.190 to 0.0230%
V_2O_5	0.0350 to 0.0550%
Se	0 to 0.0010%.

36. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that its percentage by weight of FeO is greater than 0.42.

37. (Canceled)

38. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it has, for a thickness of 5 mm, a light transmission under illuminant C (TLC5) of between 15% and 35%.

39. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it is coated with a layer of at least one metal oxide.

40. (Previously Presented) The colored glass in accordance with Claim 20, characterized in that it is in sheet form.

41. (Previously Presented) A window for an automobile made in accordance with Claim 20.

42. (Previously Presented) A laminated glazing made in accordance with Claim 20.